

REMARKS/ARGUMENTS

Claims 1-12, 14, 15, and 22-24 are pending in this application. By this Amendment, Applicant cancels Claims 16-20.

The drawings were objected to under 37 C.F.R. § 1.83(a) for allegedly failing to show every feature of the invention specified in the claims. Particularly, the Examiner alleged that the different shapes of valleys as recited in Claims 16-20 must be shown or the features canceled from the claims. Claims 16-20 have been canceled. Accordingly, Applicant respectfully requests reconsideration and withdrawal of this objection.

Claims 1, 2, 7-12, 14-20, and 22-24 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Mukai et al. (U.S. 4,693,139). Claims 1-3, 7-12, 14-20, and 22-24 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Spurny (U.S. 6,125,536). Claims 1, 2, 4-12, 14-20, and 22-24 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Ishida et al. (U.S. 6,312,159) in view of Mukai et al. Claims 16-20 have been canceled. Applicant respectfully traverses the rejections of Claims 1-12, 14, 15, and 22-24.

Claim 1 recites:

A split connecting rod comprising:
a crank-pin hole;
a valley provided on an inner circumferential surface of the crank-pin hole; and
a fracture starting point groove provided at the base portion of said valley; wherein

the fracture starting point groove includes a pair of walls parallel to a predetermined fracture plane, and a bottom surface which connects the pair of parallel walls and forms an arc with a radius of R; and

the valley forms an angle with respect to the predetermined fracture plane greater than an angle that the pair of walls of the fracture starting point groove define with respect to the predetermined fracture plane. (emphasis added)

The Examiner alleged that Mukai et al., Spurny, and the combination of Ishida et al. and Mukai et al. teach all of the features recited in Applicant's Claim 1, except for the feature of "the fracture starting point groove includes a pair of walls parallel to a

predetermined fracture plane.” The Examiner further alleged that it would have been an obvious matter of design choice to make the surfaces of the fracture starting point groove of Mukai et al., Spurny, and Ishida et al. parallel to the fracture plane, since such a modification would have involved a mere change in the shape of the groove. Furthermore, the Examiner alleged that a discovery of an optimum range within prior art general conditions is also generally recognized as being within the level of ordinary skill in the art. Applicant respectfully disagrees.

Mukai et al. specifically teaches that the first surfaces 11₁ and 12₁ are **inclined** surfaces with respect to the fracture plane (see, for example, col. 3, lines 36-52). The upper and lower walls 11₁, 12₁ of the fracture starting point groove form an angle θ_1 of **“45° to 50°, preferably 50°”** (see, for example, lines 44-47 in column 3 of Mukai et al.), i.e., at an angle of 22.5° to 25° with respect to the fracture plane. Mukai et al. neither teaches nor suggests that the walls 11₁, 12₁ could or should be inclined at any other angle than the angle θ_1 of 45° to 50°, and certainly fails to teach or suggest that the walls could or should be parallel to the fracture plane. In order for the fracture starting point groove of Mukai et al. to obtain the advantages disclosed therein, i.e., to prevent the reverses of the split metals from being damaged and to prevent cut powder from being generated (see col. 4, lines 1-3 of Mukai et al.), the fracture starting point groove must have walls that are inclined with respect to the fracture plane. Thus, to modify the walls of the fracture starting point groove of Mukai et al., as alleged by the Examiner, would render the fracture starting point groove of Mukai et al. unsuitable for its intended purpose.

The Examiner is reminded that if the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. In re Gordon, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984) and MPEP § 2143.01.

Furthermore, the walls 11₁ and 12₁ of the fracture starting point groove of Mukai et al. meet at a point as seen in Fig. 6 of Mukai et al. The fracture starting point groove of Mukai et al. does not include any bottom surface, and certainly does not include the

feature of “a bottom surface which connects the pair of parallel walls and forms an arc with a radius of R” as recited in Applicant’s Claim 1.

At best, Spurny teaches either a valley or a fracture starting point groove, and clearly fails to teach both of a valley and a fracture starting point groove. As clearly seen in Figs. 1 and 3 of Spurny, the notches 13 and 15 of Spurny have walls that are inclined at a constant angle with respect to the fracture plane. Thus, Spurny certainly fails to teach or suggest the feature of “the **valley forms an angle** with respect to the predetermined fracture plane **greater than an angle that the pair of walls of the fracture starting point groove** define with respect to the predetermined fracture plane” (emphasis added) as recited in Applicant’s Claim 1.

Furthermore, Spurny fails to teach or suggest that the notches 13 and 15 could or should have any configuration other than the configuration shown in Figs. 1 and 3 of Spurny which includes walls that are inclined at an angle with respect to the fracture plane, and certainly fails to teach or suggest that the walls of the notches 13 and 15 could or should be parallel to the fracture plane.

At best, Ishida et al. teaches, in Fig. 7, a recessed groove 21, which the Examiner alleged corresponds to the fracture starting point groove recited in Applicant’s Claim 1. Ishida et al. fails to teach or suggest any specific configuration or shape of the recessed groove 21, and certainly fails to teach or suggest the features of “the fracture starting point groove includes a pair of walls parallel to a predetermined fracture plane,” “a bottom surface which connects the pair of parallel walls and forms an arc with a radius of R,” and “the valley forms an angle with respect to the predetermined fracture plane greater than an angle that the pair of walls of the fracture starting point groove define with respect to the predetermined fracture plane” as recited in Applicant’s Claim 1.

All of the fracture starting grooves disclosed in Mukai et al., Spurny, and Ishida et al. include walls that are inclined at an angle with respect to the fracture plane. Contrary to the Examiner’s allegations, to modify the fracture starting point grooves of any of Mukai et al., Spurny, and Ishida et al. so as to have a pair of walls parallel to the

fracture plane would require far more than a mere change of shape of the fracture starting point grooves. The Examiner has failed to provide any reason or motivation to modify the fracture starting grooves of Mukai et al., Spurny, and Ishida et al. so as to include a pair of walls that are parallel to a fracture plane and a bottom surface which connects the pair of parallel walls and forms an arc with a radius of R as recited in Applicant's Claim 1.

As noted in the recent USPTO Guidelines Regarding Obviousness and the KSR Decision, the Examiner is required to provide a clear, reasoned statement supporting and explaining the conclusion of obviousness. However, the Examiner has failed to provide any explanation, reason, or logical conclusion as to why it would have been desirable for one of ordinary skill in the art to somehow modify the fracture starting point grooves of Mukai et al., Spurny, and Ishida et al. such that the walls of the fracture starting point grooves would be parallel to the fracture plane, and Mukai et al., Spurny, and Ishida et al. certainly fail to overcome this clear deficiency.

Regarding the Examiner's allegation that a discovery of an optimum range within prior art general conditions is also generally recognized as being within the level of ordinary skill in the art, it is completely unclear what range the Examiner is referring to as being within the level of ordinary skill in the art. A fracture starting point groove having an arrangement of a pair of walls being parallel to the fracture plane is completely different from a fracture starting point groove having walls that are inclined with respect to the fracture plane, and does not involve a mere discovery of an optimum range. To the contrary, the entire configuration of the fracture starting point groove must be modified, for example, to include a bottom surface which connects the pair of parallel walls.

Accordingly, Applicant respectfully submits that Mukai et al., Spurny, and Ishida et al., applied alone or in combination, fail to teach or suggest the unique combination and arrangement of features recited in Applicant's Claim 1.

Accordingly, Applicant respectfully requests reconsideration and withdrawal of the rejection of Claim 1 under 35 U.S.C. § 103(a) as being unpatentable over Mukai et

al., the rejection of Claim 1 under 35 U.S.C. § 103(a) as being unpatentable over Spurny, and the rejection of Claim 1 under 35 U.S.C. § 103(a) as being unpatentable over Ishida et al. in view of Mukai et al.

In view of the foregoing amendment and remarks, Applicant respectfully submits that Claim 1 is allowable. Claims 2-12, 14, 15, and 22-24 depend upon Claim 1, and are therefore allowable for at least the reasons that Claim 1 is allowable.

In view of the foregoing remarks, Applicant respectfully submits that this application is in condition for allowance. Favorable consideration and prompt allowance are solicited.

To the extent necessary, Applicant petitions the Commissioner for a One-Month extension of time, extending to May 12, 2008 (May 11, 2008 falls on a Sunday), the period for response to the Office Action dated January 11, 2008.

The Commissioner is authorized to charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-1353.

Respectfully submitted,

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